



Matrix Analysis

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Book Condition: New. Publisher/Verlag: Springer, Berlin | This book presents a substantial part of matrix analysis that is functional analytic in spirit. Topics covered include the theory of majorization, variational principles for eigenvalues, operator monotone and convex functions, and perturbation of matrix functions and matrix inequalities. The book offers several powerful methods and techniques of wide applicability, and it discusses connections with other areas of mathematics.

| I A Review of Linear Algebra.- I.1 Vector Spaces and Inner Product Spaces.- I.2 Linear Operators and Matrices.- I.3 Direct Sums.- I.4 Tensor Products.- I.5 Symmetry Classes.- I.6 Problems.- I.7 Notes and References.- II Majorisation and Doubly Stochastic Matrices.- II.1 Basic Notions.- II.2 Birkhoff's Theorem.- II.3 Convex and Monotone Functions.- II.4 Binary Algebraic Operations and Majorisation.- II.5 Problems.- II.6 Notes and References.- III Variational Principles for Eigenvalues.- III.1 The Minimax Principle for Eigenvalues.- III.2 Weyl's Inequalities.- III.3 Wielandt's Minimax Principle.- III.4 Lidskii's Theorems.- III.5 Eigenvalues of Real Parts and Singular Values.- III.6 Problems.- III.7 Notes and References.- IV Symmetric Norms.- IV.1 Norms on \mathbb{R}^n .- IV.2 Unitarily Invariant Norms on Operators on \mathbb{R}^n .- IV.3 Lidskii's Theorem (Third Proof).- IV.4 Weakly Unitarily Invariant Norms.- IV.5 Problems.- IV.6 Notes and References.- V Operator Monotone...



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